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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,962	11/07/2005	Alexander Cioc	17233-007	8983

54205 7590 08/05/2008

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EXAMINER	
HIGGINS, GERARD T	

ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
08/05/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/531,962	CIOC ET AL.	
	Examiner	Art Unit	
	GERARD T. HIGGINS	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,5,7,9,10,12-17,19 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,5,7,9,10,12-17,19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 May 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed 05/20/2008 has been entered. Currently claims 1, 2, 4, 5, 7, 9, 10, 12-17, 19, and 20 are pending and claims 3, 6, 8, 11, and 18 are cancelled.

Drawings

2. The replacement drawings were received on 05/20/2008. These drawings are acceptable.

Claim Objections

3. Claim 14 and 16 are objected to because of the following informalities: "information is stored in storage glass material" is awkward in claim 14 and "by thermally induced formation" is awkward in claim 16. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 4 and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With regard to claim 4, the Examiner does not find support for the new limitation "a flat surface of one of the at least two interconnected disks comprising the storage glass material."

With regard to claim 12, the Examiner does not find support for changing that the information and data "consist of a spatial arrangement…" to "comprises a spatial arrangement."

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 4, 14, 16, and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 seeks to say that there is "at least two interconnected disks comprising the storage glass material;" however, this is clearly not the case as claim 1 recites that the "storage medium comprises at least two interconnected disks." The Examiner suggests applicants state "wherein metallic ion doping is arranged in at least one surface of the storage glass material."

With regard to claim 14, the phrase "in a dielectric storage material doped with metallic ions" leads the claim to be indefinite because it is unclear if there is an

additional "dielectric storage material" layer in addition to the “storage glass material” layer.

With further regard to claim 14, the phrase “with the said irradiation in transmission or reflection” is awkward and leads the claim to be indefinite.

Claim 16 recites the limitation "the first step of irradiation" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1, 2, 4, 5, 7, 9, 10, 12-17, 19, and 20 are rejected under 35 U.S.C. 103(a) as obvious over Wu (5,078,771) in view of Nomura et al.’s “Super-Resolution Read-Only Memory Disk with Metal Nanoparticles or Small Aperture,” Jap. J. Appl. Phys. Pt. 1, vol. 41(3B) pp. 1876-1879 (March 2002).

With regard to claims 1, 4, 5, and 13, Wu describes a storage medium comprising a glass dielectric layer, which has an integral ion-exchanged surface layer (IIES layer) that is in the glass substrate and not laminated on top thereof (col. 27, lines 50-63). The IIES layer may be comprised of silver (col. 4, lines 22-33). The IIES layer is formed with the glass substrate by heating the silver ions solution with the glass

substrate and subsequent cooling (col. 4, line 56 to col. 5, line 15). Wu states at col. 33, lines 33-35 that a reflective coating may be sputtered onto the IIES layer.

The irradiation of the storage medium and the donor layer to create the recording layer in applicants' claim 1 is a product-by-process limitation. It has been held that "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." Please see MPEP 2113 and *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The Examiner takes the position that the heating of the glass layer and the silver ion layer to create the IIES layer in Wu is equivalent to applicants' ion-exchanged layer formed by focused laser irradiation.

Alternatively, it would have been obvious to one having ordinary skill in the art of the manufacture of optical recording media to use a laser or any form of irradiation to selectively control the heating process that corresponds to the generation of the IIES (recording) layer. This would generate a boundary layer that would have the specific doping properties desired for applicants' intended use. The motivation for using other sources of radiation is it would simplify and reduce the cost of generating the optical recording media; however with further regard to claim 1, Wu fails to specifically disclose or render obvious the polymer layer and two interconnected disks of claim 1, and the

additional specific structures and arrangements of said additional structures in applicants' claims 7, 9, and 10.

Nomura et al. disclose the structure of an optical recording medium in their Figure 5.

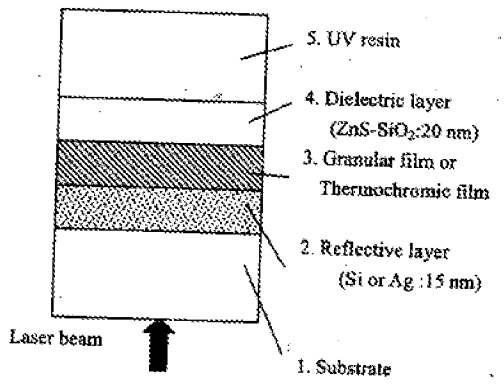

Fig. 5. Cross-sectional view of the sample disk.

Nomura et al. disclose that their granular film comprises small silver particles, wherein reflectivities are changed by increasing the silver particle size. The granular film layer **3** is analogous to applicants' storage glass material layer (ion-doped layer), the substrate **1** is analogous to applicants' polymer layer (Nomura et al. discloses the substrate may be polycarbonate, same as applicants), there is a reflective layer **2** arranged in between the storage material and the material layer, and there are tracks (optically functional structures) on the polycarbonate substrate (pp. 1877, col. 2).

Since Nomura et al. and Wu are both drawn to optical recording media featuring layers with dispersed metal particles therein; it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the glass substrate with the IIES layer of Wu into the disk structure Nomura et al. The results of this combination would have been predictable to one having ordinary skill in the art of

CD/DVD manufacture; furthermore, each element would have performed the same in combination as they had separately. Additionally, Nomura et al. disclose using his recording medium to increase data capacity and recording density, which is extremely beneficial in the art of CD/DVD manufacture.

With regard to claims 2, 12, and 14, Wu discloses forming reduced elemental silver in the form of specks or particles by application of high energy beams (col. 30, lines 3-21). Wu provide numerous methods of increasing the yield of these specks or particles at col. 30, line 22 to col. 33, line 13. These are also made with substrates of glass. He discloses that these types of layers are useful in forming DVD's, and hence they can be formed with a reflective layer so that they can be read or recorded in reflective mode (col. 33, lines 18-35).

With regard to claim 11, Wu states at col. 33, lines 33-35 that a reflective coating may be sputtered onto the IIES layer.

With regard to claim 15, Wu discloses at col. 35, lines 16-39 that the sensitive glass plates are readable using actinic/visible radiation.

With regard to claim 16, Wu discloses a variety of laser useful for recording onto the optical recording medium at col. 36, line 33 to col. 38, line 13. Included in this is a CO_2 laser (col. 38, lines 5-13), which applicants specifically mention in their specification (page 6, lines 4-10) as completely appropriate for using to record on their equivalent recording medium.

With regard to claim 17, Wu discloses at col. 33, line 36 to col. 34, line 43 methods for erasing the recording medium, including heating of the recording medium to erase previously recorded information.

With regard to claim 19, Wu discloses a heat development step at col. 31, line 60 to col. 32, line 11. They state that areas that have been exposed to the E-beam are darkened and areas that have not been exposed are unaffected. The Examiner deems that these method steps teach exposing the entire storage medium to a heat treatment step above a transformation temperature of the glass storage medium.

With regard to claim 20, the Examiner deems this to be an intrinsic property because the materials of the optical recording medium are analogous and varying the intensity of electromagnetic and particle radiation on this recording medium would intrinsically form analog information. Additionally, Wu teaches at col. 5, lines 42-51 that analog recording may be performed.

Response to Arguments

10. Applicant's arguments, see Remarks, filed 05/20/2008, with respect to objections to the drawings, the objections to the specification, the objections to the claims, and the rejection of claims 1-18 under 35 U.S.C. 112, second paragraph, have been fully considered and are persuasive. The relevant objections/rejections have been withdrawn; however, the Examiner has made new 35 U.S.C. 112, second paragraph rejections based upon applicants' amendments; specifically, claim 4 is not supported and is indefinite, and claims 14, 16, and 19 are indefinite.

11. Applicant's arguments filed 05/20/2008 with regard to the rejection of claims 1-18 under 35 U.S.C. 103(a) as obvious over Wu (5,078,771) have been fully considered but they are not persuasive.

Applicants are seeking to state that the claimed limitation of metallic ion doping by laser radiation in claim 1 is storage of information and that Wu's heating to effectuate doping is patentably different.

The Examiner respectfully disagrees. The Examiner specifically stated that the limitation "whereby by irradiation…ions are transferred from the donor medium into the storage glass material" in applicants' claim 1 is not a recording method, but rather a method of producing the optical recording medium, which then may be further recorded upon (reduction of metal ions is the recording process). As such the Examiner deems these limitations of claim 1 to be product-by-process limitations.

It has been held that "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." Please see MPEP 2112 and *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985); further, "[o]nce the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward

with evidence establishing an unobvious difference between the claimed product and the prior art product." Please see MPEP 2113 and *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). Applicants have not provided proof that the optical recording medium produced by a process comprising doping using a focused laser beam would result in a product patentably different from that of Wu; furthermore, applicants' claim 1 allows for the possibility that the recording layer may be uniformly doped as in Wu.

Applicants then go on to argue that the photosensitivity-inhibitors of Wu would necessarily make the recording medium of Wu unable to perform the intended use of claim 2. The Examiner deems the limitation of claim 2 "whereby by irradiation...may be converted into metallic particles or aggregations of metallic particles" to be an intended use limitation. While there is no disclosure that the recording layer may be recorded upon using a "focused laser beam" as presently claimed, applicants attention is drawn to MPEP 2111.02 which states that "if the body of a claim fully and intrinsically sets forth all the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction". Further, MPEP 2111.02 states that statements in the preamble reciting the purpose or intended use of the claimed invention must be evaluated to determine whether the purpose or intended use results in a structural difference between the claimed invention and the prior art. Only if such

structural difference exists, does the recitation serve to limit the claim. If the prior art structure is capable of performing the intended use, then it meets the claim.

It is the examiner's position that the purpose or intended use, i.e. recording by a focused laser beam, recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art optical recording medium and further that the prior art structure which is an optical recording medium identical to that set forth in the present claims is capable of performing the recited purpose or intended use.

Additionally, the Examiner directs applicant's attention to MPEP 2144.04(II)(A) and *Ex parte Wu*, 10 USPQ 2031 (Bd. Pat. App. & Inter. 1989), which states that the "elimination of an element and its function is obvious if the function of the element is not desired." In this regard, the photosensitivity-inhibitors of col. 23, lines 8-23 are specifically designed to reduce the sensitivity to actinic radiation and increase the sensitivity to particle radiation. It would have been obvious to one having ordinary skill in the art at the time the invention was made to remove these photosensitivity-inhibitors in order to allow the system of Wu to be used with actinic radiation. The motivation to do so can be found in the fact that most commercial optical recording device function using actinic radiation, and therefore it would have been obvious to provide optical recording media appropriate for use in such devices.

Even further, the Examiner directs applicants' attention to col. 35, lines 1-15 of Wu which states that bit by bit recording may be effectuated by uniformly darkening the IIES layer and then erasing certain areas using focused laser beams. This erasing is

still effectuating a recording on the optical recording medium of Wu. Wu goes on state that this can be used to generate diffraction limited spot sizes.

Lastly, applicants are then arguing that the process of recording of claims 13-17, 19, and 20 are patentable over Wu because Wu teaches away from using electromagnetic radiation. This is a spurious argument for all the reasons mentioned above, and also because of the fact that applicants' claims 13-17, 19, and 20 specifically allow for the use of particle radiation for purposes of recording, which applicants have failed to address.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERARD T. HIGGINS whose telephone number is (571)270-3467. The examiner can normally be reached on M-F 7:30am-5pm est. (1st Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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